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PTO/SB/08A (08-00)

Substitute for form 1449A/PTO				<i>Complete if Known</i>	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(use as many sheets as necessary)</i>				Application Number	10/730,067
Sheet	1	of	3	Filing Date	December 9, 2003
				First Named Inventor	Louis B. ROSENBERG
				Group Art Unit	2674
				Examiner Name	
				Attorney Docket Number	IMMR-067/04US

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY
		Number	Kind Code ² (if known)		
XW	A1	5,785,630		Bobick, et al.	07/28/1998
	A2	5,766,016		Sinclair et al.	06/16/1998
	A3	5,547,382		Yamasaki et al.	08/20/1996
	A4	5,466,213		Hogan et al.	11/14/1995
	A5	5,334,027		Wherlock	08/02/1994
	A6	5,309,140		Everett, Jr., et al.	05/03/1994
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▼	A31	3,623,064		Kagan	11/23/1971
	A32	3,517,446		Corlyon et al.	06/30/1970

¹ Unique citation designation number.

² See attached Kinds of U.S. Patent Documents.

/Xiao Wu/

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XW	A33	3,497,668		Hirsch	02/24/1970
	A34	3,220,121		Cutler	11/30/1965
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		Office ¹	Number ²	Kind Code ³ (if known)			
XW	B1		0 349 086	A1	Stork Kwant B.V.	01/03/1990	

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ⁴
XW	C1	Balgrie, "Electric Control Loading - A Low Cost, High Performance Alternative," <i>Proceedings of Interservice/Industry Training Systems Conference</i> , pp. 247-254, November 6-8, 1990	
	C2	Iwata, "Pen-based Haptic Virtual Environment," 0-7803-1363-1/93 IEEE, pp. 287-292, 1993	
	C3	Russo, "The Design and Implementation of a Three Degree of Freedom Force Output Joystick," <i>MIT Libraries Archives</i> pp. 1-131, May 1990, archived 8/14/90	
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	C5	Jones et al., "A perceptual analysis of stiffness," ISSN 0014-4819 Springer International (Springer-Verlag); <i>Experimental Brain Research</i> , Vol. 79, No. 1, pp. 150-156, 1990	
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▼	C7	Snow et al., 'Model-X Force-Reflecting-Hand-Controller,' NT Control No. NPO-17851; JPL Case No. 7348, pp. 1-4 with 45 pages of attachments, 06/15/1989	
	C8	Ouh-Young, "Force Display in Molecular Docking," Doctoral Dissertation, University of North Carolina at Chapel Hill, UMI Order No. 9034744, p. 1-369, 1990	

¹ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).

² For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.

³ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible.

⁴ Applicant is to place a check mark here if English language Translation is attached.

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	C21	Minsky, "Computational Haptics: The Sandpaper System for Synthesizing Texture for a Force-Feedback Display," <i>Ph.D. Dissertation</i> , MIT, June 1995, archived 7/6/95
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	C27	Eberhardt et al., "OMAR - A Haptic display for speech perception by deaf and deaf-blind individuals," <i>IEEE Virtual Reality Annual International Symposium</i> , Seattle, WA, Sep. 18-22, 1993
	C28	Rabinowitz et al., "Multidimensional tactile displays: Identification of vibratory intensity, frequency, and contractor area," <i>Journal of The Acoustical Society of America</i> , Vol. 82, No. 4, October 1987
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	C30	Bejczy et al., "A Laboratory Breadboard System For Dual-Arm Teleoperation," <i>SOAR '89 Workshop</i> , JSC, Houston, TX, July 25-27, 1989
	C31	Ouhyoung et al., "A Low-Cost Force Feedback Joystick and Its Use in PC Video Games," <i>IEEE Transactions on Consumer Electronics</i> , Vol. 41, No. 3, August 1995
	C32	Marcus, "Touch Feedback in Surgery," <i>Proceedings of Virtual Reality and Medicine The Cutting Edge</i> , Sep. 8-11, 1994
▼	C33	Bejczy, et al., "Universal Computer Control System (UCCS) For Space Telerobots," CH2413-3/87/0000/0318501.00 1987 IEEE, 1987

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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44C#011.DOC

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¹ Unique citation designation number.

² Applicant is to place a check mark here if English language Translation attached.



(1 of 2)

PTO/SB/08A (10-01)

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 1 of 3

Complete If Known

Application Number	10/730,067
Filing Date	December 9, 2003
First Named Inventor	Louis B. Rosenberg
Art Unit	2674
Examiner Name	Unassigned
Attorney Docket Number	IMMR067/04US

U.S. PATENT DOCUMENTS

Examiner	Cite No. ¹	Document Number		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code ² (if known)			
XW		6,422,941		7/23/2002	Thorner et al.	
		6,160,489		12/12/2000	Perry et al.	
		6,111,577		8/29/2000	Zilles et al.	
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Examiner Initials ³	Cite No. ¹	Foreign Patent Document			Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Country Code ³	Number ⁴	Kind Code ⁵ (if known)			
XW		JP	H2-185278		7/19/1990	Taito Corporation	
XW		JP	H4-8381		1/13/1992	Epoch Co. and Key-Planning Co.	
XW		JP	H7-24147		1/27/1995	Sega Corporation	
XW		JP	H5-192449		8/3/1993	Taito Corporation	

Examiner Signature	/Xiao Wu/	Date Considered	05/29/2006
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²Applicant's unique citation designation number (optional). ³Kind Codes of U.S. Patent Documents at www.uspto.gov or MPEP 901.04. ⁴Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁵For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁶Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁷Applicant is to place a check mark here if English language Translation is attached.

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OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS		
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▼		"Component Maintenance Manual With Illustrated Parts List, Coaxial Control Shaker Part No. C-25502," Safe Flight Instrument Corporation, Revised 28 January 2002 (3 pages).

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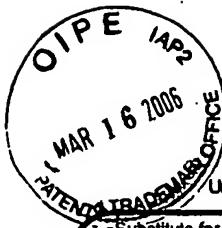
OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS		
Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
XW		"Technical Manual Overhaul Instructions With Parts Breakdown, Coaxial Control Shaker Part No. C-25502," Safe Flight Instrument Corporation, Revised 15 July 1980 (23 pages).
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XW		ROSENBERG, "Virtual Fixtures: Perceptual Overlays Enhance Operator Performance In Telepresence Tasks," Ph.D. Dissertation, Stanford University, June 1994.

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XW		2002/0030663	03-2002	Tierling et al.	
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Substitute for form 1449A/PTO				Complete If Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(use as many sheets as necessary)</i>				Application Number	10/730,067
Sheet	2	of	11	Filing Date	December 9, 2003
				First Named Inventor	Louis B. Rosenberg
				Art Unit	2674
				Examiner Name	Unassigned
				Attorney Docket Number	IMMR067/04US

U.S. PATENT DOCUMENTS					
Examiner	Cite No. ¹	Document Number Number Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
XW		4,769,763	09-1988	Trrieb et al.	
		4,787,051	11-1988	Olson	
		4,791,934	12-1988	Brunnett	
		4,798,819	01-1989	Mlessier et al.	
		4,800,721	01-1989	Cernenska et al.	
		4,803,413	02-1989	Kendig et al.	
		4,811,608	03-1989	Hilton	
		4,819,195	04-1989	Bell et al.	
		4,839,838	06-1989	LaBiche et al.	
		4,849,692	07-1989	Blood	
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		5,095,303	03-1992	Clark et al.	
		5,103,404	04-1992	McIntosh	

Examiner Signature	/Xiao Wu/	Date Considered	05/29/2006
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XW		5,107,080	04-1992	Rosen	
		5,116,051	05-1992	Moncrief et al.	
		5,128,948	06-1992	Mitchell et al.	
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				Art Unit	2674
				Examiner Name	Unassigned
				Attorney Docket Number	IMMR067/04US

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		Number Kind Code ² (if known)			
XW		5,264,768	11-1993	Gregory et al.	
		5,275,565	01-1994	Moncrief	
		5,289,273	02-1994	Lang	
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		5,589,828	12-1996	Armstrong	

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				First Named Inventor	Louis B. Rosenberg
				Art Unit	2674
				Examiner Name	Unassigned
Sheet	5	of	11	Attorney Docket Number	IMMR067/04US

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XW		5,589,854	12-1996	Tsal	
		5,591,924	01-1997	Hilton	
		5,623,582	04-1997	Rosenberg	
		5,625,576	04-1997	Massle et al.	
		5,629,594	05-1997	Jacobus et al.	
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		5,691,898	11-1997	Rosenberg et al.	
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		5,889,670	03-1999	Schuler et al.	
		5,897,437	04-1999	Nishiumi et al.	
		6,278,439	08-2001	Rosenberg et al.	

Examiner Initials*	Cite No. ¹	Foreign Patent Document			Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Country Code ³	Number ⁴	Kind Code ⁵ (# known)			
XW		JP	4-34810				
		GB	2254911				
		WO	9502801				
		WO	9642078				
		EP	0826634	A2			

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		Country Code ³	Number ⁴	Kind Code ⁵ (# known)			
XW	WO	9532459					
	WO	9712357					
	WO	9720305					
	WO	9721160					
↓	WO	9731333					

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XW		Cursor Walso, "Designer's Corner-Useful Technology for Your Idea File," Design News, Mar. 7, 1993, p. 63.
		"Foot-Operated Mouse," IBM Technical Disclosure Bulletin, Apr. 1986, vol. 28, No. 11.
		"High Performance Model of the Immersion Probe," Immersion Probe-MD.TM., Immersion Human Interface Corporation.
		"High Performance Model of the Immersion Probe.. Immersion Probe-MD™, Immersion Corporation (1994).
		"Proceedings of the IFIP Congress 65," International Federation for Information Processing, Information Processing 1965, vol. 3, New York, May 24-29, 1965, pp. 506
		"The Personal Digitizer.TM., Immersion Human Interface Corporation 1994.
		"Useful Technology for Your Idea File," Design News, Mar. 7, 1994, pp. 63.
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		Adachi, Yoshitaka et al., "Sensory Evaluation of Virtual Haptic Push-Buttons," Technical Research Center, Suzuki Motor Corporation, Nov. 1994.
		Adelstein Bernard D. et al., "A High Performance Two Degree-of-Freedom Kinesthetic Interface," Massachusetts Institute of Technology 1992, pp. 108-112.
		Atkinson, William D. et al, "Computing with Feeling," Comput. & Graphics, vol. 2, No. 2-E, pp. 97-103.
		Batter, James J. et al., "Grope-1: A Computer Display to the Sense of Feel," pp. TA-4-188-TA-4-192.
		Bejczy, Antal K., "The Phantom Robot: Predictive Displays for Teleoperation with Time Delay," IEEE 1990, pp. 546-550.
		Burdea, Grigore et al., "A Portable Dextrous Master with Force Feedback," Presence: Teleoperators and Virtual Environments, MIT Press, Jun. 1991.
V		Burdea, Grigore et al., "Dextrous Telerobotics with Force Feedback-An Overview," Robotica 1991, vol. 9.

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XW		Buttolo, Pietro et al., "Pen-Based Force Display for Precision Manipulation In Virtual Environments," IEEE Mar. 1995, pp.1-8.
		Colgate J. Edward et al., Implementation of Stiff Virtual Walls in Force-Reflecting Interfaces, Sep. 22, 1993.
		Ellis, R.E. et al., "Design and Evaluation of a High-Performance Prototype Planar Haptic Interface," ASME Dec. 3, 1993, DSC-vol. 49, pp. 55-64.
		Fischer, Patrick et al., "Specification and Design of Input Devices for Teleoperation," 1990.
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		Herndon, J.N. et al., "The State-of-the-Art Model M-2 Maintenance System," Proceedings of the 1984 National Topical Meeting on Robotics and Remote Handling in Hostile Environments, American Nuclear Society, pp. 59-65.
		Howe, Robert D., "Task Performance with a Dextrous Teleoperated Hand System," Proceedings of SPIE, Nov. 1992, vol. 1833, pp. 1-9.
		Iwata, H., "Artificial Reality with Force Feedback: Development of Desktop Virtual Space with Compact Master Manipulator," Computer Graphics, vol. 24, No. 4, 1990, pp. 165-170.
		Iwata, Hiroo et al, Volume Haptization, IEEE 1993, pp. 16-18.
		Jacobsen, S.C. et al., "High Performance, High Dexterity, Force Reflective Teleoperator II," ANS Topical Meeting on Robotics & Remote Systems, Albuquerque, New Mexico Feb. 24-27, 1991, pp. 1-10.
↓		Kelley, A.J. et al., "MagicMouse: Tactile and Kinesthetic Feedback in the Human-Computer Interface Using an Electromagnetically Actuated Input/Output Device," Dept. of Elec. Engineering, Univ. of British Columbia, 1993, pp. 1-27.

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XW		Kilpatrick, Paul Jerome, 1947, "The Use of a Kinesthetic Supplement in an Interactive Graphics System", Xerox University Microfilms, Ann Arbor, Michigan 48106, 1976, pp. 1-175.
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Examiner Signature	/Xiao Wu/	Date Considered	05/29/2006
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Substitute for form 1449A/PTO				Complete If Known		
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				Application Number	10/730,067	
(use as many sheets as necessary)				Filing Date	December 9, 2003	
Sheet 10 of 11				First Named Inventor	Louis B. Rosenberg	
				Art Unit	2674	
				Examiner Name	Unassigned	
				Attorney Docket Number		IMMR067/04US

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS		
Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
XW		Rosenberg, L.B., "Commercially Viable Force Feedback Controller for Individuals with Neuromotor Disabilities", AL/CF-TR-1997-0016, United States Air Force Armstrong Laboratory, May 1996.
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Examiner Signature	/Xiao Wu/	Date Considered	05/29/2006
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OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS		
Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
XW		Tavkhelidze, D.S. "Kinematic Analysis of Five-Link Spherical Mechanisms," Mechanism and Machine Theory 1974, vol. 9, pp. 181-190.
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